

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of carrying out signal-processing consideration of a measurement signal related to the respiration activity of a person, ~~in particular for~~ when matching pressure regulation in the ~~administration of~~ administering a breathable gas at a pressure level which at least in phase-wise manner is above the ambient pressure, the method comprising:
~~characterised in that in the context of signal processing consideration~~
generating evaluation results of the measurement signal indicative of the respiratory gas flow via differentiation, the evaluation results are generated, which permit differentiation
permitting classification between obstructive and central breathing disorders.

2. (Currently Amended) A method as set forth in claim 1, further comprising detecting
~~characterised in that in this case the inspiration time and the expiration time is detected for~~
successive breaths.

3. (Currently Amended) A method as set forth in claim 1 ~~characterised in that the~~ 2,
further comprising detecting a ratio of inspiration time and expiration time is detected.

4. (Currently Amended) A method as set forth in claim 3, further comprising generating
~~characterised in that an evaluation signal which gives information as to whether imminent or~~
already existing breathing disorders are obstructively and/or centrally caused ~~is generated by~~
~~consideration of~~ based on the change in respect of with respect to time of said ratios.

5. (Currently Amended) A method as set forth in claim 3, wherein the ~~1~~ characterised in that evaluation results which give information as to whether a breathing disorder phase is imminent are generated from comparative evaluation of successively occurring changes in properties of the derivatives, ~~in particular the first derivative of the respiratory gas flow in the region of the breathing phase change.~~

6. (Currently Amended) A method as set forth in claim 2, further comprising describing breathing disorders using a ~~1~~ characterised in that the ratio of inspiration time I_x to expiration time E_x is used to describe breathing disorders.

7. (Currently Amended) A method as set forth in claim 2, wherein ~~1~~ characterised in that a change in the duration of the inspiration time with respect to the expiration time represents a ~~pointer to~~ is indicative of an imminent obstruction in the upper respiratory tracts.

8. (Currently Amended) A method as set forth in claim 2, further comprising extracting the ~~1~~ characterised in that evaluation results for an existing or imminent disturbance phase are extracted from comparative consideration of successively occurring changes in properties of the derivatives of or within ~~[[the - or within the -]]~~ respiratory cycles, ~~in particular the first derivative of the respiratory gas flow in the region of the breathing phase change.~~

9. (Currently Amended) A method as set forth in claim 8, wherein ~~+~~ characterised in that consideration of the derivatives differential is directed to the beginning of the inspiration cycle and/or to the end of the inspiration cycle.

10. (Currently Amended) A method as set forth in claim 2, wherein ~~+~~ characterised in that consideration is directed to the curve shape during the inspiration cycle.

11. (Currently Amended) A method as set forth in claim 10, further comprising calculating an ~~+~~ characterised in that the average gradient is calculated in simple form for intervals which extend over a predetermined percentage ~~for example over 10% of the time~~ duration of the respective breathing phase.

12. (Currently Amended) A method as set forth in claim 10, further comprising variably calculating a gradient at the phase change ~~+~~ characterised in that the gradient of the v^{θ} configuration is calculated floatingly within a window over the inspiration cycle.

13. (Currently Amended) A method as set forth in claim 1, further comprising performing ~~characterised in that the trend analysis is effected in particular in respect of~~ based on the nature and constitution of the breathing drive.

14. (Currently Amended) A method as set forth in claim 13, further comprising performing ~~+~~ characterised in that the trend analysis is preferably effected having regard to ~~with~~ the inclusion of based on one or more of the following signal evaluation results specified

hereinafter: max. peak flow during the inspiration cycle, the breath volume, the inspiration time, and the second derivative of the measured flow curve.

15. (Currently Amended) A method as set forth in claim 1, ~~wherein the~~ characterised in that signal-processing consideration is effected on the basis of ~~carried out based on~~ consideration of a derivative taken the differential at the beginning of the expiration cycle or at the end of the expiration cycle respectively.

16. (Currently Amended) A method as set forth in claim 15, further comprising calculating ~~characterised in that the derivative differential is calculated either (a) in a simple form over a predetermined [[an]] interval of for example 10% at the beginning of the expiration cycle and after the expiratory maximum flow, or (b) variably calculated floatingly over the expiration cycle.~~

17. (Currently Amended) A method as set forth in claim 1, further comprising performing an evaluation procedure that includes consideration ~~characterised in that the evaluation procedure is carried out with the inclusion of the maximum peak flow during the expiration cycle, the breath volume and/or the expiration time and/or the second derivative or curvature (curvature) of the measured flow curve during the expiration cycle.~~

18. (Currently Amended) A method as set forth in claim 17, further comprising generating, based on ~~characterised in that on the basis of the evaluation procedure, there is~~

~~generated~~ an evaluation result which furnishes information about the nature and the constitution of the upper respiratory tracts.

19. (Currently Amended) A method as set forth in claim 1, further comprising analyzing ~~characterised in that consideration of the configuration of the curve shape includes analysis of~~ the number of local maxima and minima, the amplitude of the local maxima and minima, the sequence of the magnitude of the amplitudes of local maxima and minima, and the frequency in the sequence of local maxima and minima in considering the configuration of the curve shape.

20. (Currently Amended) A method as set forth in claim 1, further comprising ~~performing characterised in that signal processing also includes spectral consideration and~~ consideration in respect of amplitude of a snoring signal.

21. (Currently Amended) A method as set forth in claim 1, further comprising ~~performing characterised in that signal processing evaluation and the trend analysis based thereon are effected on the basis of~~ of the evaluation results including combined consideration of at least two parameters ~~specified hereinafter.~~

22. (Currently Amended) A method as set forth in claim 21, ~~wherein the~~ characterised ~~in that trend analysis is based on consideration of the variation in the ratios between two of the~~ following parameters specified hereinafter: inspiration time, expiration time, breath duration, breath frequency, breath volume during the inspiration cycle, breath volume during the expiration cycle, first differential and second differential of the respiratory flow, amplitudes of

local maxima and local minima, frequency of local maxima and local minima, inflexion points,
maximum inspiratory flow, and maximum expiratory flow.

23. (Currently Amended) A method as set forth in claim 1, further comprising generating
~~characterised in that on the basis of the evaluation procedure there are generated evaluation~~
results based on an evaluation procedure which give information about at least one of the
following:

- the nature of the upper respiratory tracts, at least ~~inter alia~~ for differentiating between
central and obstructive apneas,
- the elastic properties of the upper respiratory tracts, ~~(restoring modulus, modulus of~~
elasticity)
- the location of an obstruction,
- the degree of severity of a sleep apnea, and
- the Pcrit-value.

24. (Previously Presented) Apparatus for carrying out the method as set forth in claim 1.

25. (Currently Amended) Apparatus for supplying a respiratory gas to a patient at a
pressure level which is above the ambient pressure at least in phase-wise manner, comprising
a delivery device for delivering the respiratory gas,
a measuring device for generating a signal indicative in respect of the respiratory gas
flow,

a regulating device for regulating the respiratory gas pressure to a predetermined reference pressure, and
a pressure presetting device for presetting the reference pressure, and
characterised by a signal processing device ~~which is configured to generate, in such a way that on the basis of~~ based on a variation in respiratory cycle-specific reference features obtained via differentiation, ~~it generates an evaluation result which is indicative of whether or to what extent a prevailing or imminent breathing disorder is of obstructive or central origin, and that~~
wherein the reference pressure is determined having regard to said evaluation result.

26. (Currently Amended) Apparatus as set forth in claim 25, further comprising
~~characterised in that it includes a respiratory gas line extending between the delivery device and~~
a breathing mask, and a breathing mask device.

27. (Currently Amended) An evaluation apparatus for evaluation of a series of measurement data which contains items of information indicative in respect of the pattern in respect of time of the breathing of a patient, ~~including comprising:~~
a signal processing device ~~which is configured to generate, based on in such a way that on the basis of~~ a variation in respiratory cycle-specific reference features obtained via differentiation, ~~it generates evaluation results which are indicative of whether or to what extent~~
the measurement series contains sequences which are to be classified as a breathing disorder of obstructive or central origin.

28. (Currently Amended) An evaluation apparatus as set forth in claim 27, further comprising a display configured to visualize ~~characterised in that the measurement series can be visualised at least in portion-wise manner and that the~~ to distinguish sequences of presumed disturbed breathing ~~can be emphasised distinguishably as sequences of obstructive or central~~ origin.

29. (New) A method as set forth in claim 5, wherein the derivative is the first derivative of the respiratory gas flow in the region of the breathing phase change.

30. (New) A method as set forth in claim 8, wherein the derivative is the first derivative of the respiratory gas flow in the region of the breathing phase change.

31. (New) A method as set forth in claim 11, wherein the predetermined percentage is 10%.

32. (New) A method as set forth in claim 16, wherein the predetermined interval is 10%.

33. (New) A method as set forth in claim 23, wherein the elastic properties of the upper respiratory tracts include restoring modulus and/or modulus of elasticity.

34. (New) A method of carrying out signal-processing consideration of a measurement signal related to the respiration activity of a person when matching pressure regulation in

administering a breathable gas at a pressure level which at least in phase-wise manner is above ambient pressure, the method comprising:

generating evaluation results of the measurement signal indicative of the respiratory gas flow, the evaluation results permitting classification between obstructive and central breathing disorders; and

analyzing the number of local maxima and minima, the amplitude of the local maxima and minima, the sequence of the magnitude of the amplitudes of local maxima and minima, and the frequency in the sequence of local maxima and minima in considering the configuration of the curve shape.

35. (New) A method of carrying out signal-processing consideration of a measurement signal related to the respiration activity of a person when matching pressure regulation in administering a breathable gas at a pressure level which at least in phase-wise manner is above ambient pressure, the method comprising:

generating evaluation results of the measurement signal indicative of the respiratory gas flow, the evaluation results permitting classification between obstructive and central breathing disorders,

wherein the signal processing further includes spectral consideration and consideration in respect of amplitude of a snoring signal.

36. (New) A method of carrying out signal-processing consideration of a measurement signal related to the respiration activity of a person when matching pressure regulation in

administering a breathable gas at a pressure level which at least in phase-wise manner is above ambient pressure, the method comprising:

generating evaluation results of the measurement signal indicative of the respiratory gas flow, the evaluation results permitting classification between obstructive and central breathing disorders,

wherein said evaluation results are generated based on an evaluation procedure which gives information about at least one of the following: the nature of the upper respiratory tracts, at least for differentiating between central and obstructive apneas, the elastic properties of the upper respiratory tracts (including restoring modulus and/or modulus of elasticity), the location of an obstruction, the degree of severity of a sleep apnea, and the Pcrit-value.